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ABSTRACT

A review of material on driver education in Illinois was conducted to support the recommendation that the state mandate for driver education be removed. Examination of the historical background and the components of the mandate suggested that there were three major goals for driver education: traffic accident reduction, provision of driver education for individuals between 18 and 21 years of age, and provision of a mechanism for training and licensing youth 15 to 18 years of age. Only the goal of providing for early licensing was found to have been met. It was recommended that the State Board of Education support legislation to (1) repeal the state requirement for classroom and behind-the-wheel training in the public secondary school curriculum, (2) amend early licensing provision, (3) amend the statutory provision concerning personnel certification requirements, (4) amend the statutes to authorize school districts to provide a comprehensive driver education program directly or indirectly through contract, and (5) amend the statutes to provide that the secretary of state shall have sole responsibility for licensing and supervision of commercial training driver schools. (Tables of selected national and Illinois data are appended.) (YLB)

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# DRIVER EDUCATION MANDATE: A PRELIMINARY REPORT

ILLINOIS STATE BOARD OF EDUCATION

Edward Copeland, Chairman
State Board of Education

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State Superintendent of Education

U.S. DEPARTMENT OF EDUCATION
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THE DRIVER EDUCATION MANDATE: A PRELIMINARY REPORT

## I. INTRODUCTION

In response to the direction of the State Board of Education, staff presented its first paper on Driver Education to the Board's Planning and Program Committee in April 1980. Following Board discussion of two additional staff reports, as well as the recommendations of the School Problems Commission Sub-Committee on Driver Education and other public testimony, the State Board of Education adopted the following motion on April 9, 1981.

> The State Board of Education recommends and supports legislation to remove the State requirement for Behind-the-Wheel training in Driver Education in the public secondary school curriculum. Any local district that chooses to continue offering a Behind-the-Wheel training program in Driver Education shall continue to receive appropriate State Funding. The Board directs the State Superintendent to submit and/or support legislation consistent with this action.

Implicit in the language of this motion was the Board's desire to retain the classroom instruction portion of the mandate until, to use the words of the State Superintendent, "...the proposed study of State mandated programs in Education has been completed." (Memorandum, April 9, 1981)

In September 1981 the State Board of Education approved a mandate study plan including Driver Education. The following report is a major extension of the previous staff investigations and is considerably more extensive in its findings and recommendations.

While retaining full responsibility for the recommendations and supporting arguments presented in the report, staff wish to express their gratitude for the cooperation of teacher, administrative, legislative and organizational representatives at local, state and national levels whose assistance was essential to the completion of this report.

## II. Research Questions/Sources of Evidence

### Research Questions

A staff group conducted a review of all material on Driver Education previously submitted to the State Board as well as the information supporting the material. The five analytical questions in the Board's mandate study plan - which are specifically addressed in the Summary Section of this report - were also reviewed and subsequently used as a basis for deriving the specific questions to be discussed in this report. From these initial activities it was determined that there were three questions for general analysis and four questions for decision as follows:

### General Analysis Questions

1) What is the historical background of the mandate?

2) What are the goals of the mandate?

3) Have they been met?

### Questions for decision:

1) Should the mandate for Driver Education classroom instruction be continued?

2) Should the mandate to provide Behind-the-Wheel Training (BTW) be continued?

3) Should the mandate on Driver Education personnel qualifications be continued?

4) Should the State Board of Education continue to regulate the program and staff of selected commercial driving schools?

### Sources of Evidence

This report was developed from the following sources as they were relevant to Driver Education.

-Statutes and rules and regulations;

-Research reports;

-Published and unpublished documents;

-Public testimony before the School Problems Commission and the State Board of Education;

-Information in the State Board's files;

-Correspondence with individuals in their official capacities, e.g., teachers, administrators, organizational representatives, etc.; and

-All materials previously submitted to the State Board of Education.

Following Section V of the report is a numbered list of selected references. The text of the report contains numbers in parentheses which are keyed to the references.

The report also contains an Appendix which consists of several tables selected from national and state data related to driver education and traffic safety. They have been included to facilitate easy reference and to improve the flow of the report's narrative.

## III. General Analysis Questions

1. What is the historical background of the mandate?

In 1895 there were reported to be only four registered automobiles in the United States. In that same year it was reported with some concern that half of them had collided with each other in St. Louis, Missouri. While this story may be apocryphal, it can serve to date the onset of public concern for traffic safety in what quickly came to be called the automotive era. From this modest beginning Americans took to their wheels in such numbers and with such devastating effect on each other that in 1913 the National Safety Council was established and, by approximately 1920 (when there were almost 10 million cars registered in the United States*), driver education programs entered the public schools in Illinois and other states.

Such programs were not initially authorized by statute, were few in number, varied in content, and were fiscally supported entirely at the local level. However, concern for traffic safety and the provision of traffic safety programs continued to grow during the twenties and thirties.

This early period is notable for the long range development of driver education in Illinois and in other states for three reasons. First, it was during these years that coalitions of local, state, and national leaders concerned with safety (including driver education/safety education programs in the public schools) were developed. Second, the principal reason for supporting such programs then - as now - was concern over the magnitude of traffic accidents among the young and the belief that safety education and driver training would help to alleviate the situation. And third, the spread of local programs and of support for them across levels of government culminated in requests for state legislative and fiscal support.

In October 1940 the Illinois Legislative Council published "State Aid for Driver Training Courses" (34). The report documents the early State level discussion of driver education in terms of three issues which have endured to the present day: driver education as a safety measure; the need for a comprehensive program, i.e., one that includes classroom and practice driving; and the need for adequate funds, mainly to support the costs of the practice driving.

*By contrast, in 1980 Illinois alone had 7.14 million cars registered (23).

While the Legislature did not appropriate funds for Driver Training in 1940, it did adopt the Safety Education Act of 1941. This bill was essentially permissive in nature and general in scope. The current version of it is found in Section 27-17 of The School Code of Illinois. In terms of State legislation the 1941 bill was the high water mark for those who supported safety education as a general topic including safety in the home, traffic safety and health safety.

Programs for traffic safety education continued to grow and their supporters continued to seek legislative action with the effect that in 1947 the Illinois legislature adopted a bill mandating that a course of instruction in "Traffic Laws and Regulations" be offered for at least one hour each week in each of grades one through nine. This bill may reasonably be considered the progenitor of all subsequent Driver Education legislation.

The historical development of driver education programs can be summarized as follows.

1903 - A Boston YMCA offers what may be the nation's earliest driver training course (38).

1916 - Possibly the first high school driver education program is offered to students in Gilbert, Minnesota by William H. Fulton - an engineer also noted for his work on the airplane "Spirit of St. Louis" (38).

1924-26- Herbert Hoover, Secretary of Commerce, sponsors two National Highway Conferences which recommend (among other things) that safety and driver education be included in the curricula of all public schools and that a Uniform Vehicle Code (UVC) should be adopted (38). The Code was adopted in 1926.*

1931 - Professor Amos E. Neyhart (sometimes called the "Father of Driver Education") conceives and begins to disseminate the concept that driver training will reduce accidents in the same way that factory-training reduces accidents (38).

1936 - Lane Technical High School (Chicago, Illinois) introduces the nation's first multiple phase driver education course; one which includes classroom, simulator, off-street and on-street instruction components (38). This remains the model-of-choice in driver education.

*This Code - now found in the Uniform Laws Annotated - is not a federal law, but has been used as a model for state laws including the 1935 Illinois statute cited on the next page.

1949 - The National Commission on Safety Education (a part of the National Education Association) publishes recommendations, from a national conference on high school driver education, that the program include "...a minimum of 30 hours of classroom instruction and an average minimum of 6 hours per student for actual driving..." This 30/6 approach subsequently became perhaps the most typical feature of driver education programs in the United States (20).

Interestingly, this national conference also recommended that:

> There should be no legislation requiring schools to provide driver education. If any state law regarding driver education is necessary, its purpose should be to authorize driver education programs and the expenditure of educational funds to finance them...Driver education should not be financed with funds from special sources earmarked for this purpose.

1957 - Illinois incorporates the 30/6 approach in its permissive legislation authorizing driver education programs and reimbursement.

1968 - National Highway Traffic Safety Administration (NHTSA) begins research and development program which culminated, in 1978, in the Safe Performance Curriculum (SPC) now under test in DeKalb County, Georgia (36).

1978 - Illinois State Board of Education releases Driver Education for Illinois Youth, the product of a four-year curriculum development project using federal funds and involving approximately 50 local school districts. By 1979, representatives of almost 79% of the State's 750 public high schools had received information on this curriculum through State Board sponsored workshops.

The legislative history of the program, which involves Chapter 122 and Chapter 95-1/2 of the Illinois Revised Statutes as well as at least one federal law, is summarized below.

| Date | Action | Statutory Reference Chapter |
|---|---|---|
| 1935 | Uniform Act Regulating Traffic on Highways; cited in 1947 mandate below. | 95-1/2 - Section 98 et seq. |
| 1939 | First reference to "operator license" (Driver); set minimum age at 15. | 95-1/2 - Section 35d |
| 1941 | Safety Education Act of July 17, 1941; authorized general course of safety education for a minimum 16 hours/year, and required Normal Schools to offer an elective course in safety education. | 122 - Section 523 a-c |

| | | |
|---|---|---|
| 1947 | Courses in Traffic Laws and Regulations; mandated instruction of at least 1 hour/week in each of grades 1-9. | 122 - Section 27-24 |
| 1953 | Set minimum licensing age at 16, 15 with cause, and 14 or 15 with enrollment in high school Driver Education. | 95-1/2 - Section 73.14 |
| 1957 | Driver Education Act, authorized classroom and Behind-the-Wheel (BTW) course which would be available to defined group; appropriated funds via the Driver Education Fund; and set reimbursement maximum at $30 dollars per pupil completing an approved course. | 122 - Section 27-24 |
| 1959 | Reimbursement formula amended to provide separate rates for classroom and BTW. | 122 - Section 785 |
| 1966 | Federal Highway Safety Act adopted; provides funds for state programs which among other things provide for comprehensive driver training programs. | 23 U.S.C 402(b) |
| 1967 | Mandated provision of classroom/BTW course to defined population; linked completion of approved course to early licensing, i.e.,16-17. Effective January 1, 1969. | 122 - Section 27-24.2<br>95-1/2 - Section 6-107 |

The period from 1947 through 1981 produced four major developments in driver education programs in Illinois and other states.

1. Categorical state support for driver education programs: In 1947 Delaware became the first state to adopt legislation providing special funds for driver education (21). By 1957, when Illinois first authorized categorical funding for a permissive driver education program using driver license fees, fourteen states had adopted similar programs. By 1979-80 at least twenty-six states provided special state funding; federal funds were used in at least twenty-three states in addition to or in lieu of special state financial aid (4).

2. Development of Driver Education program/personnel standards: State and federal fiscal support has been invariably accompanied by the creation of minimum program and personnel standards. The typical minimum program in Illinois and most other states offering fiscal support is thirty hours of classroom instruction and six hours of behind-the-wheel instruction. The typical personnel standard is a valid teaching certificate with driver education endorsement.

3. Linking driver education to licensing requirements for certain age groups: In 1967 Illinois passed a law (effective 1969) providing that no applicant under the age of eighteen could be issued a license unless the applicant had passed an approved driver education course, which was defined as having been approved by the Superintendent of Public Instruction. While similar provisions exist in other states, it should be noted that at least sixteen states license drivers under age eighteen (typically at sixteen) with or without driver education. In seven additional states that license drivers below 18, completing a driver education program reduces the license eligibility age by six months to two years (e.g., 16 to 14, 17 to 15, etc.).

4. Adoption of federal legislation: The Federal Highway Safety Act of 1966 provided funds to states for expanding and upgrading driver education programs, principally through Section 402 of the Act. A condition of receiving grants under the Act was that each state have a comprehensive driver training program (23 U.S.C. 402 (b)(1)(E)). In view of this provision some states, e.g., Indiana, passed legislation which simply accepted the federal law and its implementing rules and regulations. This federal law is also credited with influencing Illinois' action mandating the provision of driver education in 1969.

Since 1969, principal developments in Illinois' driver education program have included legislation to increase the reimbursement levels (1971, 1981), curricular development at the state and local level, and the initiation (1980) of research on the program by the State Board of Education.

2. What are the goals of the mandate?

The mandate for Driver Education has several distinct parts which should be considered as a basis for describing the goals of the mandate. The major components and goals of the mandate can be summarized as follows.

a. To assure that all students in grades 1-8 receive a course of instruction in safety education that deals with portions of the Illinois Vehicle Code and Litter Control Act for at least one class period each week in each grade, and in at least one of the years in grades 10 through 12. (Ch. 122-27-23, which precedes the Driver Education Act in the Code.)*

*This report does not address the elementary school component of the Driver Education mandate, because that program is not typically operated as a separate course of instruction. It is usually treated as one aspect of the general topic of safety education.

b. To assure that each high school student is required to take the course described above during one of the years cited and that such course be at least 30 hours in duration and taught by a certified high school teacher who has acquired special qualifications pursuant to Section 27-24.2 of the Driver Education Act.

c. To assure that each school district which maintains grades 9-12 shall offer a driver education course consisting of classroom and practice driving instruction as defined to all residents and certain non-residents of the district who are at least 15 but not yet 21 years of age.

d. To provide for the approval of minimum program and personnel standards in public and certain private driver education courses through the statute and the rules and regulations of the State Board of Education.

e. To assure that anyone who is 16 or 17 years old must successfully complete an approved driver education course in order to be eligible for a driver's license.

f. To authorize State funding of a portion of the costs for the classroom and BTW portions of the driver education course in the public secondary schools.

In summary, the current driver education mandate requires that both classroom and BTW instruction be provided, that students must take at least the classroom portion, and that anyone between 16 and 18 years of age who wants a driver's license must successfully complete both parts of an approved program.

These components of the mandate and their historical development suggest that there are three major goals for Driver Education:

a. To help reduce traffic accidents through providing for courses of driver education in the classroom and behind-the-wheel;

b. To provide driver education (and thus encourage its use) for non-public school students, out-of-school youth and other individuals between 18 and 21 years of age; and

c. To provide a mechanism for training and licensing youth between 15 and 18 in response to the practical need for such access.

The components and goals of the Driver Education mandate support the conclusion that the State has perceived formal driver education to be important for some as a traffic safety measure, but not so important as to require it of all beginning drivers. For example:

-From 1941 to 1947 the entire program was permissive;

-From 1941 to the present only the classroom portion has been mandated for all public school students;

-The program received no special State funds for at least seventeen years after the initial legislative request (1940-1957); and

-The behind-the-wheel training has always been, until the relatively recent early licensure linkage, optional to all students.

3. Have they been met?

The goal of providing for early licensing has been met since 1939 even though the specific preconditions for it have changed as indicated earlier in the legislative summary. The remaining two goals of the mandate have not fared nearly as well. Each is discussed below.

Service to non public school, out-of school youth, and certain others between 18 and 21 years of age. For almost twenty-five years the State has sought to increase the use of driver education by these populations through expanding program availability, first in 1957 and again in 1967. The State Board staff has no formal record of the extent of their participation in driver education. However, informal discussions with experienced agency personnel support the conclusion that of the three groups, non-public school students use the program more often than the out-of-school and over 18 groups, which have never used the program in large numbers. Possible explanations for this situation include: a) that the program is not generally offered at times convenient for the out-of-school and over 18 groups; and b) that there has been little state or local effort to encourage their participation. Nevertheless it must be concluded that this goal of the driver education mandate has met only limited success.

Reducing traffic accidents through requiring classroom instruction for all public school students and behind-the-wheel instruction for a selected population. In a previous report to the State Board, staff commented on the assumption underlying this goal by noting that "years of research in Illinois and other states has failed to supply conclusive evidence in support of the assumption."

In support of this statement staff described research results as inconclusive, contradictory and based on faulty methodology. The following quotation places the transformation of research conclusions, from generally positive to inconclusive, in an historical perspective (31).

> Since the early years of driver education in the 1920's, its proponents have claimed safety benefits. Scores of nonrandom control group studies conducted around the middle of the century (American Automobile Association, 1945, 1955, 1959; Association of Casualty and Surety Companies, 1955; National Education Association, 1957) appeared to confirm such benefits, suggesting reductions in violations and crash involvement of 50% or more for drivers receiving driver education. These results, together with the face validity of educating beginning drivers, contributed much to the status of driver education as one of the nation's primary traffic safety measures.

The validity of the early studies of the safety effectiveness of driver education has been questioned. Haddon, Suchman, and Klein (1964) pointed out that none of these studies included random assignment or statistical controls for inherent differences between students who chose to enroll in driver education and those who did not. Other studies (Conger, Miller, and Rainey, 1966; Ferdun, Peck & Coppin, 1967; Rainey, Conger & Walsmith, 1961) showed that driver education students differ in a number of important respects from students who do not enroll and that these variables could account for the differences in the driving records of the two groups.

When researchers attempted to control for these selection biases using statistical methods, they found much smaller differences in subsequent crash and violation rates between driver education and non-driver education groups (Conger et al., 1966; Coppin, Marsh & Peck, 1965; McGuire & Kersh, 1969). In an extensive study of this type, Harrington (1971) found a 5% lower crash involvement rate among females who took driver education, but no such difference for male students.

Harrington attempted to control for biographical, attitudinal, and personality differences by using analysis of covariance techniques. He emphasized the limitations of these methods and the need for experimental studies using randomized groups. Without such studies, it is impossible to be sure what benefits, if any, are produced by driver education.

Perhaps the most recent, and certainly most widely publicized, entry into the debate has been the 1981 report "Teens and Autos: A Deadly Combination" (17). Published by the Insurance Institute for Highway Safety - which, from 1947 to 1968 issued annual awards for Driver Education Achievement (4)-the report summarized the results of several studies to support its assertion that the major public health problem for teenagers is injuries associated with automobiles. One of several policy options offered in the report was the elimination of high school driver education.

It is essential to note that the Institute's report is less an attack on driver education per se, than on its use as a vehicle for extending the age of licensing downward. Points more pertinent to the question are made by Seaver, et al. in a later portion of the article cited above (31).

In summary, it appears that the net safety effect of driver education may be slightly positive, zero, or possibly even negative. Considerably more definitive research will be required to determine the direction and/or magnitude of this effect. Also to be considered in any social evaluation, however, is the value of mobility to persons under the age of 18 (and to society as a whole) as well as the value of the training function that driver education provides parents. In view of existing circumstances, it is unlikely that driver education should (or even could) be discontinued at this point. Nevertheless, a reevaluation of its funding sources may be in order if insignificant safety benefits are found in subsequent objective evaluations.

In January 1979, Dr. William Haddon, President of the Insurance Institute of Highway Safety, presented his conclusions concerning high school driver education in "Options for the Prevention of Motor Vehicle Crash Injury", a Keynote Address to an international conference on this topic. Following is an excerpt from the published abstract of his address (6).

> No favorable results from high school driver training have been shown even for drivers over 18. The contribution of alcohol abuse, when sought, has been found in every country...The motor vehicle safety programs introduced in the U.S. in 1966, when the number of deaths was 5.3/10,000 registered vehicles, reduced the fatalities to 4.25 in 1973. A further drop to 3.3, associated with the speed limit reduction to 55 miles/h (89 km/h), occurred by 1976. It has been estimated that the initial standards prevented the loss of 28,000 lives during the period 1966-74...Tests of safety pamphlets in California and television programs urging seat belt use have been proved ineffective. In contrast, requiring motorcyclists to wear crash helmets and drive with headlights on at all times reduced motorcycle crash injuries.

The impression the staff is left with after reviewing past as well as current research focused on the safety effects of driver education is that it has failed to produce conclusive positive results and thus has also failed to provide an effective rationale for the typical (i.e., 30/6) driver education program - mandated or not.

## IV. Questions for Decision

1. Should the mandate to provide Behind-the-Wheel (BTW) Training be continued?

No. The State Board of Education (April 1981) adopted a resolution which among other things supported the elimination of this portion of the mandate.

In its present form the mandate requires the provision of a service to the children of parents/guardians, and to certain other individuals who are:

a. Willing to (or must, because of their personal situation) assume whatever risks may be inherent in early licensing;

b. Able to assume the added insurance burden for a youthful driver;

c. Wish to be eligible for possible reductions in the cost of insurance; and who

d. Wish to have the program supplement or supplant their own education efforts.

As a service it is extremely convenient, confers an immediate benefit and is provided without direct cost to the users.

At the same time it is important to consider that this enrollment level is linked to the requirement to complete it as a condition of early licensing; a requirement adopted in 1967 at least in part on the basis of research strategies and results which have been seriously challenged and in part as a response to the provisions of the federal Highway Safety Act.

Because of the persistent and appropriate emphasis on traffic injury and fatality data it has generally gone unnoticed in the discussion of the need to mandate driver education that for decades both young and old drivers in overwhelming numbers have performed safely. That is, while it is true that certain age groups are usually proportionally over or under-represented in the statistics on accidents, injuries and fatalities, it is also true that being involved in a reported accident is decidedly atypical of drivers both within any age group and between several age groups (13) (23).

For example, in 1980 there were 459,692 reported accidents in Illinois. This number is 6.6% of the State's 7.0 million licensed drivers. Drivers under age 25 represent 1.6 million or 22% of the total (23). Assume for the sake of this example that all of the accidents involved only drivers under age 25; then 30% of these drivers had accidents, while 70% did not. Further, if all of the drivers involved in fatal accidents had been under 25 they would represent only .17% of the drivers in that age group.

For three decades (1939-69) Illinois recognized the value, indeed the necessity - given the limitations of mass transportation - of mobility for youth by extending eligibility first to 15 year olds and later (1957) to 16 year olds without the present requirement to complete a course including BTW instruction. Their performance over these years merits State confidence in the abilities of their parents and/or friends as teachers and in the performance of youth as responsible drivers.

In this context there does not appear to be a compelling State interest in maintaining a mandate which uses funds from three separate sources (local property taxes, General State Aid, and the Driver Education Fund) to provide a service which has no conclusively demonstrated safety effect; is used only by a select population (a significant number of whom must use it); and which results in having the public sector assume a parental and private sector task in a way which restricts parental and private sector alternatives without persuasive evidence of the need to do so.

Therefore, the provision of the previous Board resolution calling for elimination of the Behind-the-Wheel mandate should be retained and extended to call for the elimination of the requirement that such a course be completed as a condition of early licensing.

2. Should the mandate for Driver Education classroom instruction be continued?

   No. As far back as 1940 proponents of driver education have contended that the secondary school classroom instruction should be integrated with practice driving, i.e., both should be taken concurrently or at least consecutively (34).

   The present mandate has three principal components which have the following general effects.

   - All public school students who complete the eighth grade are required to have had classroom safety education instruction including portions of the Motor Vehicle Code and other safety related topics, for the equivalent of one class period each week, in each grade from one through eight (Ch. 122, Section 27-23).

   - All public secondary school students must receive an additional 30 hours of driver education classroom instruction at some time during grades 10-12. This course is also available to certain other persons on request.

   - By interpretation of the statutes and rules all youth between 15 and 18 years of age who seek early licensure must successfully complete approved classroom and behind-the wheel courses.

The secondary school program is now generally organized and operated primarily to serve those students who wish to take both courses and secondarily to provide the classroom course mandated for all students at some point during grades 10-12. As presently operated then, Driver Education is fundamentally a service program for those who want to be eligible for early licensing.

Given the integrated nature of the program it follows that the previous State Board recommendation to eliminate the mandate to provide practice driving should be extended to include the classroom component as well.

3. Should the mandate on driver education personnel qualifications be continued in its present form?

No. In previous reports to the State Board it has been noted that Illinois' requirement that driver education teachers be fully certified, i.e., have a college degree with appropriate amounts of specified courses, is not shared by all other states. Tables from the 1980 Driver Education Status Report of the National Safety Council (4), document the variety of personnel qualification standards now in effect among the reporting states (See Appendix).

The driver education literature in Illinois and other states contains assertions that a "quality driver education program" requires a teacher who has a college degree, teaching certificate, and specific training in the subject. Staff finds no research evidence to support this assertion. Rather, it appears to be the result of assuming that the quality of a program is automatically improved by raising the level of formal education required for eligibility to work in it. The existing and unchallenged alternative standards in other states (See Appendix) suggest that the present standard is different from and more costly, but not necessarily better than other approaches (4).

The present driver education personnel certification standards for public and private secondary schools should therefore be amended to provide both sectors with greater flexibility.

4. Should the State Board of Education continue to regulate the program and staff of selected commercial driving schools?

Legislation requires State Board approval of commercial driving school programs and personnel that serve youth under 18 (1967, Ch. 95-1/2). This has been translated into regulations which in essence seek to transform a private enterprise (previously administered solely by the Secretary of State) into a public one. Under the general assertion, discussed above, that a high quality driver education program requires a fully certified instructor and that standards for the commercial schools serving youth should thus be identical to public school standards, the legislation and the regulations imposed identical personnel and substantially identical program standards on the commercial schools serving youth under 18.

There is no compelling evidence for imposing these requirements on commercial driver training schools. Regulation of such schools should be the province of a more appropriate State agency.

## V. Summary and Preliminary Recommendations

### Summary

This report is based upon a review of materials previously submitted to the State Board of Education as well as a review of additional material related to the mandate for driver education in Illinois. In particular, this report differs from previous papers in that the specific questions addressed in this paper were derived from the five questions which make up the framework for analysis included in the Board's mandate study plan. These questions, and a brief response to each as it concerns driver education, are presented below.

1. What desirable condition or outcome is called for by the mandate?

   The driver education mandate is intended to produce at least the following conditions: classroom instruction for all public school students; successful completion of an approved course as a condition for early licensing (thus retaining a long standing goal of providing youth under 18 access to the privilege of driving); and encouragement of certain other individuals to take driver education by requiring that it be made available to them upon request.

   The desirable outcome of the driver education mandate has been that it should make a significant contribution to traffic safety in Illinois.

2. Is there evidence that in the absence of the mandate the condition or outcome will not be achieved?

   One can assume that in the absence of a mandate some school districts may choose not to offer driver education.

   There is no evidence to demonstrate that failure to offer the program has or will significantly affect the level of traffic safety in Illinois.

3. As presently defined does (can) the mandate yield the desired result?

   As presently defined the mandate produces the desired conditions, but its existence has not been clearly connected to producing the desired result.

4. Could the mandate be defined and/or implemented differently and yield the desired result?

   It has been suggested that the minimum licensing age be raised to eighteen (17). In 1980, 35.8% of all Illinois drivers involved in fatal accidents were under 25 years of age (23). This represents only .06% of licensed drivers in that age group. These and other data support the conclusion that raising the licensing age would create an unwarranted hardship for the over 200,000 licensed drivers in Illinois who are under 18 years of age and who have in the main performed safely.

It is conceivable that a driver education program capable of producing a significant and positive effect on traffic safety could be developed. However, the magnitude of the change needed (as suggested by the DeKalb County Project) would be very large indeed.* Further, there is insufficient evidence concerning what will work and little reason to suppose that such information will become available in the years ahead.

It is not possible then, to state with confidence how the present mandate could be defined differently in order to yield the desired result.

5. Does the mandate reflect a compelling state interest?

There is unquestionably a compelling state interest in promoting traffic safety. There is not, however, a compelling state interest to mandate a program which may be only marginally effective or even marginally ineffective in terms of its contribution to traffic safety.

Given the responses to these questions as well as to the questions discussed in earlier sections of this report, the task force presents the following summary conclusions.

- The public secondary school driver education program is essentially an early licensing service program with an indeterminate safety effect - its users should be able to choose it.
- Teachers in the public secondary and selected commercial school driver programs are required to be fully certified teachers - this is not warranted.
- Early licensing is conditional on successful completion of the 30/6 program - this is not warranted.
- There is no compelling interest for the State to continue the Driver Education mandate in its present form.

*The Safe Performance Curriculum calls for 35 hours of classroom instruction, and 17 hours of simulation, and 17 hours of off-street driving and 3 hours of on-street driving. In short, the total program time is doubled (from 36 hours to 72 hours) and the ratio of classroom to practice time is also drastically changed from 5:1 to .95:1 (36). As previously reported to the State Board, a final report (including data on costs) is not expected until late 1982.

Preliminary Recommendations

It is recommended that the State Board of Education support legislation to:

1. Repeal the State requirement for classroom and Behind-the-Wheel training in the public secondary school curriculum.

2. Amend the early licensing provisions of the statutes to provide that such licensing shall be available to those who are at least 16 years old and who have demonstrated such knowledge and skills as the Secretary of State may deem necessary.

3. Amend the statutory provision concerning personnel certification requirements to provide alternative professional training programs for registration of those who wish to provide driver education instruction in a public or private setting.

4. Amend the statutes to authorize eligible school districts to provide a comprehensive driver education program directly or indirectly through contract, which contract may include provision of public facilities; and to offer the program in these circumstances during any period of the year and to all beginning drivers.

5. Amend the statutes to provide that the Secretary of State shall have the sole responsibility of licensing and supervision as it relates to all commercial driver training schools.

Finally, it is recommended that:

1. The State Board of Education request that the Governor establish an interagency commission charged to investigate the relative costs and effects of traffic safety measures proven to reduce traffic accidents; to recommend allocations of State funds among such programs and to report by a date certain.

2. Any local district that chooses to continue offering Driver Education shall continue to receive appropriate State funding.

KKM:0993g

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APPENDIX

I. Selected National Data (4) (13)

II. Selected Illinois Data (23)

## TABLE X

### STATE CURRICULUM GUIDES AND LICENSING AGES

| STATE | CURRENT ED. DRIVER EDUC. CURR. GUIDE | INCLUDE ENERGY USE/ CONSERVATION? | CURRENT ED. MOTORCYCLE CURR. GUIDE | LICENSING AGE WITH DR. ED. | LICENSING AGE WITHOUT DR. ED. |
|---|---|---|---|---|---|
| AL | FAILED TO REPORT | | | | |
| AK | 1974 | X | | 16 | 16 |
| AZ | 1975 | X | MSF* | 16 | 18 |
| AR | | X | MSF* | 16 | 16 |
| CA | 1976 | X | 1980 | 16 | 18 |
| CO | 1979 | X | MSF* | 16 | 16 |
| CT | 1973 | X | MSF* | 16 | 18 |
| DE | 1959 | X | 1976 | 16 | 18 |
| DC | 1970 | X | | 16 | 18 |
| FL | NO INSTRUMENT WITH WHICH TO COLLECT DATA | | | | |
| GA | FAILED TO REPORT | | | | |
| HI | FAILED TO REPORT | | | | |
| ID | 1980 | X | 1977 | 14 | 16 |
| IL | 1976 | X | 1973 | 16 | 18 |
| IN | 1974 | | | 16.1 | 16.6 |
| IA | 1971 | X | 1975 | 16 | 18 |
| KS | 1974 | X | | 14 | 14 |
| KY | 1979 | X | | 16 | 16 |
| LA | FAILED TO REPORT | | | | |
| ME | 1968 | X | | 15 | 17 |
| MD | 1970 | X | | NA | NA |
| MA | 1970 | X | | 16.6 | 17 |
| MI | 1977 | X | 1977 | 16 | 18 |
| MN | FAILED TO REPORT | | | | |
| MS | 1979 | X | | 15 | 15 |
| MO | NO STATE DEPARTMENT OFFICE OR SUPERVISION OF DRIVER EDUCATION | | | | |
| MT | 1973 | X | 1977 | 15 | 16 |
| NB | 1980 | X | | 16 | 16 |
| NV | | | | 16 | 16 |
| NH | 1974 | X | 1980 | 16 | 18 |
| NJ | | X | | 17 | 17 |
| NM | 1973 | | 1973 | 15 | 16 |
| NY | 1969 | X | | 17 | 18 |
| NC | 1965 | X | | 16 | 18 |
| ND | 1974 | X | MSF* | 14 | 16 |
| OH | 1980 | X | 1980 | 16 | 18 |
| OK | 1973 | X | 1971 | 16 | 16 |
| OR | 1977 | | | 16 | 16 |
| PA | 1972 | X | 1974 | 16 | 16 |
| RI | 1974 | X | 1979 | 16 | 18 |
| SC | FAILED TO REPORT | | | | |
| SD | 1975 | | | 14 | 14 |
| TN | FAILED TO REPORT | | | | |
| TX | 1978 | X | 1976 | 16 | 18 |
| UT | 1978 | X | MSF* | 16 | NA |
| VT | FAILED TO REPORT | | | | |
| VA | FAILED TO REPORT | | | | |
| WA | 1971 | X | 1975 | 16 | 18 |
| WV | 1980 | X | 1971 | 16 | 16 |
| WI | FAILED TO REPORT | | | | |
| WY | FAILED TO REPORT | | | | |
| TOTAL | | 33 | 22 | | |

KEY: * Revised annually on the local level

*Use materials developed by the Motorcycle Safety Foundation

TABLE II

STUDENT PARTICIPATION IN DRIVER EDUCATION

| STATE | CRITERIA FOR ELIGIBILITY AGE | GRADE | STUDENTS ELIGIBLE FOR DRIVER EDUCATION COURSE A & C | B & D | TOTAL | STUDENTS ENROLLED IN DRIVER EDUCATION A & C | B & D | TOTAL | STUDENTS SUCCESSFULLY COMPLETING COURSE A & C | B & D | TOTAL | % SUCCESSFUL COMPLETION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | FAILED TO REPORT | | | | | | | | | | | |
| AK | 14 | 9 | 26,485 | 253 | 26,738 | 2,388 | 13 | 2,401 | 2,268 | 13 | 2,281 | 95 |
| AZ | 15.7 | 10 | 42,000 | 5,000 | 47,000 | 27,000 | 2,000 | 29,000 | 27,000 | 2,000 | 29,000 | 100 |
| AR | 14 | 9 | 134,000 | 2,700 | 136,700 | 16,000 | 900 | 16,900 | 15,825 | 850 | 16,675 | 99 |
| CA | 15 | 9 | 348,000 | NA | 348,000 | 348,000 | NA | 348,000 | 259,190 | NA | 259,190 | 74 |
| CO | 15.6 | 9 | 47,000 | 1,500 | 48,500 | 34,690 | 1,110 | 35,800 | 31,092 | 1,008 | 32,100 | 90 |
| CT | 16 | NA | 50,414 | 8,674 | 59,088 | 22,701 | 2,107 | 24,808 | 19,717 | 2,035 | 21,752 | 88 |
| DE | 15 | 10 | 9,263 | 1,780 | 11,043 | 10,613* | 1,083* | 12,416* | 9,263* | 1,778* | 11,041* | 89* |
| DC | 15.6 | 9 | 5,600 | NA | 5,600 | 4,500 | NA | 4,500 | 4,400 | NA | 4,400 | 98 |
| FL | NO INSTRUMENT WITH WHICH TO COLLECT DATA | | | | | | | | | | | |
| GA | FAILED TO REPORT | | | | | | | | | | | |
| HI | FAILED TO REPORT | | | | | | | | | | | |
| ID | 14 | NA | 15,986 | 295 | 16,281 | 15,010 | NA | 15,010 | 14,453 | NA | 14,453 | 96 |
| IL | 15 | NA | NA | NA | NA | NA | NA | NA | 195,344 | 10,000* | 205,344* | NA |
| IN | 15 | NA | NA | NA | NA | 70,000 | NA | 70,000 | NA | NA | NA | NA |
| IA | 15 | 10 | 50,211 | 3,846 | 54,057 | 48,443 | 3,536 | 51,979 | NA | NA | NA | NA |
| KS | 14 | 9 | 35,846 | 3,614 | 39,460 | 30,711 | 1,241 | 31,952 | 29,311 | 1,151 | 30,462 | 95 |
| KY | 16 | 10 | 94,075 | 1,952 | 96,027 | 43,915 | 1,500 | 45,415 | 40,000 | 1,250 | 41,250 | 91 |
| LA | FAILED TO REPORT | | | | | | | | | | | |
| ME | 15 | NA | 18,016 | 1,686 | 19,702 | NA | NA | NA | 9,887 | 625 | 10,512 | NA |
| MD | 15.6 | NA | NA | NA | 65,210 | 46,950 | 1,550 | 48,500 | NA | NA | NA | 90* |
| MA | 15.6 | NA | 71,000 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MI | 15 | NA | 185,000 | NA | 185,000 | 183,648 | NA | 183,648 | 147,283 | 20,000 | 167,283 | 91 |
| MN | FAILED TO REPORT | | | | | | | | | | | |
| MS | 14 | 9 | 41,600 | NA | 41,600 | 29,300 | 2,700 | 32,000 | NA | NA | 25,000* | 78* |
| MO | NO STATE DEPARTMENT OFFICE OR SUPERVISION OF DRIVER EDUCATION | | | | | | | | | | | |
| MT | 14.3 | 9 | 13,581 | NA | 13,581 | 12,130 | NA | 12,130 | 11,472 | NA | 11,472 | 95 |
| NB | 14 | 9 | 24,720 | NA | 24,720 | 21,413 | NA | 21,413 | 21,413 | NA | 21,413 | 100 |
| NV | 15.6 | NA | NA | NA | NA | NA | NA | NA | 5,411 | NA | 5,411 | NA |
| NH | 15.9 | any | 13,000* | NA | 13,000* | 13,000* | NA | 13,000* | NA | NA | NA | NA |
| NJ | 16 | 10-11 | 108,000 | NA | 108,000 | 78,000 | NA | 78,000 | 70,000 | NA | 70,000 | 90 |
| NM | 14 | 8 | 24,500 | 1,549 | 26,049 | 20,495 | 550 | 21,045 | 20,201 | 545 | 20,746 | 99 |
| NY | 16 | any | 223,077 | 34,561 | 257,638 | 106,464 | 27,683 | 134,147 | 105,398 | 24,582 | 129,980 | 97 |
| NC | 15 | 9-10 | NA | NA | 110,765 | 104,549 | 778 | 105,327 | 95,045 | 701 | 95,746 | 91 |
| ND | 14 | 9 | NA | NA | 11,151 | NA | NA | NA | NA | NA | 8,882 | NA |
| OH | 15.9 | NA | 175,000[1] | NA | 175,000[1] | 175,000[1] | NA | 175,000[1] | 175,000[1] | NA | 175,000[1] | 100 |
| OK | 15.6 | 10 | 46,265 | 802 | 47,067 | 43,571 | 495 | 44,066 | 42,002 | 480 | 42,482 | 96 |
| OR | 15 | NA | 39,858 | 1,846 | 41,704 | 18,675 | 628 | 19,303 | 18,363 | 620 | 18,983 | 98 |
| PA | 15 | 10 | 177,926 | 20,000* | 197,926 | 124,863 | 3,204 | 128,067 | 89,762 | 3,111 | 92,873 | 73 |
| RI | 15 | 10 | 14,700 | 2,200 | 16,900 | 14,525 | 2,075 | 16,600 | 14,345 | 2,052 | 16,397 | 99 |
| SC | FAILED TO REPORT | | | | | | | | | | | |
| SD | 14 | NA | 12,094 | 962 | 13,056 | NA | NA | NA | 8,694 | 255 | 8,949 | NA |
| TN | FAILED TO REPORT | | | | | | | | | | | |
| TX | 15 | NA | 219,907 | NA | 219,907 | 170,607 | 2,201 | 172,808 | 161,785 | 2,007 | 163,792 | 95 |
| UT | 16 | 10 | 26,044 | NA | 26,044 | 26,044 | NA | 26,044 | 26,044 | NA | 26,044 | 100 |
| VT | FAILED TO REPORT | | | | | | | | | | | |
| VA | FAILED TO REPORT | | | | | | | | | | | |
| WA | 15 | 10 | 64,684 | 3,000 | 67,684 | 64,249 | NA | 64,249 | NA | NA | NA | NA |
| WV | 15.6 | 10-12 | 26,824 | NA | 26,824 | 17,848 | NA | 17,848 | NA | NA | NA | NA |
| WI | FAILED TO REPORT | | | | | | | | | | | |
| WY | FAILED TO REPORT | | | | | | | | | | | |
| TOTAL | | | 384,676 | 96,220 | 2,597,022 | 1,945,302 | 56,074 | 2,001,376 | 1,669,968 | 75,063 | 1,778,913 | 89% AV. |

KEY:
A - Public Secondary Schools (grades 9-12)
B - Private & Parochial Secondary Schools
C - Public Junior High Schools
D - Private & Parochial Junior High Schools

[1] Includes course repeaters
[2] Includes Public and Non-public
* Estimates

## TABLE III

### TYPES OF PROGRAMS OFFERED AND HOURS REQUIRED

| STATE | SCHOOLS A & C OFFERING COURSES | SCHOOLS B & D OFFERING COURSES | CLASSROOM INSTRUCTION A&C | CLASSROOM INSTRUCTION B&D | CLASSROOM INSTRUCTION HOURS REQD. | ON-STREET PRACTICE DRV A&C | ON-STREET PRACTICE DRV B&D | ON-STREET PRACTICE DRV HOURS REQD. | SIMULATION INSTRUCTION A&C | SIMULATION INSTRUCTION B&D | SIMULATION INSTRUCTION SUBST RATIO/HRS | RANGE INSTRUCTION A&C | RANGE INSTRUCTION B&D | RANGE INSTRUCTION SUBST RATIO | IN-CAR OBSERVATION HOURS REQD | MINIMUM HOURS REQUIRED |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | FAILED TO REPORT | | | | | | | | | | | | | | | |
| AK | 41 | 1 | 34 | 2 | 30 | 28 | 2 | 6 | 9 | 0 | 3:1 | 0 | 0 | NA | 12 | 36 |
| AZ | 117 | 16 | 117 | 16 | 30 | 117 | 16 | 6 | 38 | 0 | 4:1 | 1 | 0 | 1:1 | 0 | 36 |
| AR | 311 | 5 | NA | NA | 30 | NA | NA | 6 | NA | NA | 4:1 | NA | NA | NA | 0 | 36 |
| CA | 1,166 | 0 | 1,166 | NA | 30 | 1,166 | NA | 6 | 851 | NA | 12 | 19* | NA | 12 | 6 | 36 |
| CO | 230 | 55 | 230 | 55 | CB | 229 | 53 | CB | 135 | 6 | 4:1 | 36 | 0 | 2:1 | NA | 36 |
| CT | 130 | 37 | 130 | 37 | 30 | 130 | 37 | 6 | 9 | 0 | NA | 0 | 0 | NA | 0 | 36 |
| DE | 32 | 13 | 32 | 13 | 30 | 32 | 13 | 6 | 10 | 0 | NA | 0 | 0 | NA | 6 | 36 |
| DC | 18 | 0 | 18 | 0 | 30 | 18 | 0 | 6 | 12 | 0 | 4:1 | 0 | 0 | NA | NA | 90 |
| FL | NO INSTRUMENT WITH WHICH TO COLLECT DATA | | | | | | | | | | | | | | | |
| GA | FAILED TO REPORT | | | | | | | | | | | | | | | |
| HI | FAILED TO REPORT | | | | | | | | | | | | | | | |
| ID | 184* | 1* | 105* | 1* | 30 | 105* | 1* | 6 | 0 | 0 | 3:1 | 8* | 0 | 2:1 | 12 | 48 |
| IL | 727 | 16 | 727 | 16 | 30 | 727 | 16 | 6 | NA | NA | 4:1 | NA | NA | 2:1 | 12 | 36 |
| IN | 368 | 43 | NA | NA | 30 | NA | NA | 6 | NA | NA | 4:1 | NA | NA | 2:1 | 12 | 73 |
| IA | 447* | 2* | 447* | 2* | 30 | 447* | 2* | 6 | 31* | 0 | 4:1 | 4* | 0 | 2:1 | NA | 36 |
| KS | 370 | 7 | 370 | 7 | 30 | 370 | 7 | 6 | 51 | 0 | 4:1 | 18 | 0 | 2:1 | 12 | 36 |
| KY | 260 | 26 | 260 | 26 | 30 | 260 | 26 | 6 | 34 | 0 | 4:1 | 27 | 0 | 3 | 18 | 90 |
| LA | FAILED TO REPORT | | | | | | | | | | | | | | | |
| ME | 123 | 18 | 123 | 18 | 30 | 123 | 18 | 6 | 2 | 0 | 4:1 | 2 | 0 | 3 | 6 | 36 |
| MD | 165 | 19 | 165 | 19 | 30 | 165 | 19 | 6 | 92 | 0 | 4:1 | 21 | 0 | 2:1 | 0 | 36 |
| MA | 110* | 31* | 110* | 31* | 30 | 110* | 31* | 6 | 0 | 0 | NA | 0 | 0 | NA | 6 | 42 |
| MI | 524 | NA | 524 | 35 | 30 | 524 | 35 | 6 | 21 | 0 | 3:1 | 165 | 0 | 2:1 | 0 | 36 |
| MN | FAILED TO REPORT | | | | | | | | | | | | | | | |
| MS | 276 | 70 | 261 | 64 | 30 | 261 | 64 | 6 | 100 | 0 | 4:1 | 14 | 0 | 2:1 | 12 | 36 |
| MO | NO STATE DEPARTMENT OFFICE OR SUPERVISION OF DRIVER EDUCATION | | | | | | | | | | | | | | | |
| MT | 153 | 5 | 153 | 5 | 42 | 153 | 5 | 6 | 23 | 0 | 1 | 0 | 0 | NA | 12 | 60 |
| NB | 312 | NA | 312 | NA | 30 | 312 | NA | 6 | 8 | NA | 4:1 | 1 | NA | NA | 0 | 36 |
| NV | 49 | 2 | NA | NA | 30 | NA | NA | 6 | NA | NA | 4:1 | NA | NA | NA | NA | 36 |
| NH | 93 | 15 | 93 | 15 | 30 | 93 | 15 | 8 | 1 | 0 | 4:1 | 0 | 0 | NA | 0 | 38 |
| NJ | 265 | 148 | 354 | 148 | 30 | 264 | 148 | 6 | 73 | 148 | 4:1 | 2 | 0 | 2:1 | 12 | 36 |
| NM | 128 | 10 | 128 | 10 | 30 | 128 | 9 | 6 | 5 | 0 | 4:1 | 4 | 0 | 1:1 | 9 | 45 |
| NY | 380 | 175 | NA | NA | 24 | NA | NA | 6 | NA | NA | 4:1 | NA | NA | 4:1 | 18 | 48 |
| NC | 448' | 23 | 402 | 23 | 30 | 402 | 23 | 6 | 8 | 0 | 4:1 | 20 | 0 | 4:1 | 12 | 54 |
| ND | 221 | 11 | 221 | 11 | 30 | 221 | 11 | 6 | 35 | 2 | 4:1 | 27 | 1 | 2:1 | 6 | 36 |
| OH | 751 | 0 | 751 | 0 | 36 | 751 | 0 | 6 | 268 | 0 | 6:1 | 6 | 0 | NA | 18 | 60 |
| OK | 485 | 8 | 485 | 8 | 30 | 485 | 8 | 6 | 158 | 0 | 4:1 | 5 | 0 | 2:1 | 4 | 36 |
| OR | 219 | 8 | 219 | 8 | 30 | 213 | 8 | 6 | 42 | 4 | 4:1 | 0 | 0 | NA | 6 | 36 |
| PA | 537 | 66 | 541 | 70 | 30 | 537 | 66 | 6 | 42 | 0 | 3 | 13 | 0 | 3 | 6 | 36 |
| RI | 39 | 10 | 39 | 10 | 30 | 4 | 0 | 0 | 1 | 0 | 0 | NA | NA | NA | 0 | 30 |
| SC | FAILED TO REPORT | | | | | | | | | | | | | | | |
| SD | 172 | 9 | 172 | 9 | 30 | 172 | 9 | 6 | 10 | 2 | 4:1 | 0 | 0 | NA | 6-18 | 30 |
| TN | FAILED TO REPORT | | | | | | | | | | | | | | | |
| TX | 1,100 | 32 | 1,100 | 32 | 32 | 1,100 | 32 | 6 | NA | NA | 4:1 | NA | NA | 2:1 | 6 | 38 |
| UT | 92 | 0 | 92 | 0 | 30 | 92 | 0 | 6 | 39 | 0 | 4:1 | 36 | 0 | 2:1 | 6 | 36 |
| VT | FAILED TO REPORT | | | | | | | | | | | | | | | |
| VA | FAILED TO REPORT | | | | | | | | | | | | | | | |
| WA | 304 | 6 | 304 | 6 | CB | 304 | 6 | CB | 40 | 0 | NA | 9 | 0 | NA | NA | CB |
| WV | 163 | 1 | 163 | 1 | 66 | 163 | 1 | 6 | 12 | 0 | 3 | 7 | 0 | 4 | 12-18 | 82-90 |
| WI | FAILED TO REPORT | | | | | | | | | | | | | | | |
| WY | FAILED TO REPORT | | | | | | | | | | | | | | | |
| TOTAL | 10,763 | 855 | 9,688 | 664 | | 9,544 | 647 | | 2,129 | 162 | | 414 | 1 | | | |

KEY:
A - Public Secondary Schools (grades 9-12)
B - Private & Parochial Secondary Schools
C - Public Junior High Schools
D - Private & Parochial Junior High Schools

* - School Districts (not included in totals)
' - Estimates
CB - Competency-based

## TABLE VII

### TEACHER CERTIFICATION AND TEACHER PREPARATION PROGRAMS

| STATE | MINIMUM REQUIREMENTS FOR DRIVER EDUCATION INSTRUCTORS | | | | | | | NO. COLLEGES OFFERING COURSES | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SPECIAL TEMPORARY CERTIFICATION | VALID TEACHING CERTIFICATE W/ D.E. ENDORSEMENT | MAJOR | MINOR | SEMESTER HOURS | QUARTER HOURS | SPECIAL TRAINING TO INSTRUCT HANDICAPPED | BASIC | ADVANCED | PROFESSIONALS |
| AL | FAILED TO REPORT | | | | | | | | | |
| AK | | X | | | | | | 1 | 1 | 1 |
| AZ | | X | | | | | | 4 | 3 | 0 |
| AR | | X | | X | 6 | | | 7 | 7 | 0 |
| CA | | X | | X | 9 | | | 8 | 8 | 2 |
| CO | | X | | X | | 18 | | 2 | 2 | 0 |
| CT | | X | | | 3 | | | 2 | 2 | 2 |
| DE | X | | | | | | | 0 | 0 | 0 |
| DC | | X | X | | 18 | | | 0 | 0 | 0 |
| FL | NO INSTRUMENT WITH WHICH TO COLLECT DATA | | | | | | | | | |
| GA | FAILED TO REPORT | | | | | | | | | |
| HI | FAILED TO REPORT | | | | | | | | | |
| ID | | X | | | | | | 2 | 2 | 0 |
| IL | | X | | X | 16 | | | 15 | 9 | NA |
| IN | | X | | | | | | 5 | 2 | 0 |
| IA | X | X | | | 15 | | | 4 | 0 | 0 |
| KS | | X | | | 9 | | | 7 | 2 | 0 |
| KY | | X | | X | 12 | | X | 4 | 4 | 0 |
| LA | FAILED TO REPORT | | | | | | | | | |
| ME | | X | | | 6 | | | 5 | 5 | 0 |
| MD | NA | NA | | | | | | NA | NA | NA |
| MA | | X | | | | | X | 3 | 0 | 0 |
| MI | | X | | | 8 | | | 5 | 3 | NA |
| MN | FAILED TO REPORT | | | | | | | | | |
| MS | | X | | X | 12 | | | 7 | 2 | 0 |
| MO | NO STATE DEPARTMENT OFFICE OR SUPERVISION OF DRIVER EDUCATION | | | | | | | | | |
| MT | | X | | X | | 30 | | 3 | 2 | 0 |
| NB | | X | | | 6 | | | 8 | 8 | 0 |
| NV | | X | | | 2 | | | 1 | 1 | 0 |
| NH | X | X | | | 6-12 | | X | 1 | 1 | 0 |
| NJ | X | X | | | 3 | | | 4 | 3 | 0 |
| NM | | X | | | 12 | | | 5 | 5 | 0 |
| NY | X | X | | | 6 | | | 9 | 9 | NA |
| NC | NA | NA | X | | 120 | | X | 3 | 3 | 0 |
| ND | | X | | X | | 24 | | 6 | 6 | 0 |
| OH | | X | | | | | | 15 | 15 | 15 |
| OK | X | X | | X | 9 | | | 9 | 9 | 0 |
| OR | | X | | X | | 12 | | 3 | 3 | 3 |
| PA | | X | | | | | X | 10 | 3 | 10 |
| RI | | X | | | 3 | | X | 1 | NA | NA |
| SC | FAILED TO REPORT | | | | | | | | | |
| SD | | X | | | 8 | | | 5 | 4 | 0 |
| TN | FAILED TO REPORT | | | | | | | | | |
| TX | | X | | | 6 | | | 19 | 10 | 19 |
| UT | | X | | X | | 24 | | 2 | 2 | 2 |
| VT | FAILED TO REPORT | | | | | | | | | |
| VA | FAILED TO REPORT | | | | | | | | | |
| WA | | X | | | | 12 | | 3 | 3 | 3 |
| WV | X | X | | | 12-15 | | | 8 | 2 | 0 |
| WI | FAILED TO REPORT | | | | | | | | | |
| WY | FAILED TO REPORT | | | | | | | | | |
| TOTAL | 7 | 35 | 2 | 11 | | | 6 | 194 | 139 | 57 |

TABLE VI

FULL- AND PART-TIME DRIVER EDUCATION INSTRUCTORS AND PARAPROFESSIONALS

| STATE | CERTIFIED HIGH SCHOOL DRIVER EDUCATOR INSTRUCTORS | CERTIFIED HIGH SCHOOL DRIVER EDUCATION INSTRUCTORS TEACHING FULL-TIME* | CERTIFIED HIGH SCHOOL DRIVER EDUCATION INSTRUCTORS TEACHING PART-TIME | MAY PARAPROFESSIONALS BE USED? NO | YES | CLASSROOM | IN-CAR | SIMULATION |
|---|---|---|---|---|---|---|---|---|
| AL | FAILED TO REPORT | | | | | | | |
| AK | 36 | 6 | 30 | | X | X | X | X |
| AZ | 350 | 70 | 200 | X | | | | |
| AR | 410 | 4,161[1] | 406 | | X | X | | X |
| CA | 5,331 | 1,198 | 4,133 | | X | | X | X |
| CO | 430 | 80 | 350 | X | | | | |
| CT | 460 | 33 | 427 | | X | | X[3] | |
| DE | 80 | 78 | 2 | X | | | | |
| DC | 26 | 26 | 0 | X | | | | |
| FL | NO INSTRUMENT WITH WHICH TO COLLECT DATA | | | | | | | |
| GA | FAILED TO REPORT | | | | | | | |
| HI | FAILED TO REPORT | | | | | | | |
| ID | 438 | 16 | 422 | X | | | | |
| IL | NA | NA | NA | X | | | | |
| IN | 600 | NA | NA | X | | | | |
| IA | 1,061 | 337 | 724 | X | | | | |
| KS | 685 | 186 | 499 | | X | NA | NA | NA |
| KY | 265 | 190 | 75 | X | | | | |
| LA | FAILED TO REPORT | | | | | | | |
| ME | 215 | 17 | 198 | X | | | | |
| MD | NA | NA | NA | | X | | X | X |
| MA | 430 | 10 | 420 | X | | | | |
| MI | 4,080 | NA | NA | X | | | | |
| MN | FAILED TO REPORT | | | | | | | |
| MS | 380 | NA | NA | X | | | | |
| MO | NO STATE DEPARTMENT OFFICE OR SUPERVISION OF DRIVER EDUCATION | | | | | | | |
| MT | 335 | 74 | 261 | X | | | | |
| NB | 485 | NA | NA | X | | | | |
| NV | NA | NA | NA | X | | | | |
| NH | 275 | NA | NA | | X | X | X | X |
| NJ | NA | 325 | NA | X | | | | |
| NM | 175 | 26 | 149 | NA | | | | |
| NY | 2,891 | 2,300 | 400 | X | | | | |
| NC | 1,029 | 771 | 258 | X | | | | |
| ND | NA | 9 | 311 | X | | | | |
| OH | 2,400 | 1,440 | 960 | | X | | X | |
| OK | 739 | 140 | 599 | X | | | | |
| OR | 620 | 35 | 585 | | X | | X | X |
| PA | 1,100 | 600 | 500 | | X | | X | |
| RI | 83 | 1 | 82 | X | | | | |
| SC | FAILED TO REPORT | | | | | | | |
| SD | 246 | 24 | 221 | X | | | | |
| TN | FAILED TO REPORT | | | | | | | |
| TX | 3,814 | 2,847 | 967 | | X | | X | X |
| UT | 196 | 72 | 124 | | X | | X | X |
| VT | FAILED TO REPORT | | | | | | | |
| VA | FAILED TO REPORT | | | | | | | |
| WA | 1,070 | 151 | 332,587[2] | | X | | X | X |
| WV | 284 | 154 | 130 | X | | | | |
| WI | FAILED TO REPORT | | | | | | | |
| WY | FAILED TO REPORT | | | | | | | |
| TOTAL | 31,019 | 11,220 | 13,765 | 24 | 13 | 3 | 11 | 9 |

KEY:
*5 or more class periods per day
[1] full times in summer programs only (not included in total)
[2] experimental approval
[3] during summer and after school (not included in total)

## TABLE XII

### COMMERCIAL DRIVING SCHOOL INSTRUCTORS

| STATE | NO. LICENSED OR CERTIFIED | NO. UNLICENSED UNCERTIFIED | LICENSING REQUIRED FOR CR | LICENSING REQUIRED FOR BTW | LICENSING AGENCY | EDUCATIONAL REQUIREMENTS |
|---|---|---|---|---|---|---|
| AL | FAILED TO REPORT | | | | | |
| AK | 11 | 0 | X | X | DPS | 40-hr. course or college work in Dr. Ed. |
| AZ | FAILED TO REPORT | | | | | |
| AR | 4 | 3 | X | X | DOE | Yes, unspecified |
| CA | NA | NA | NA | NA | DMV | None |
| CO | 36 | NA | X | X | DMV | H.S. diploma or GED plus 40-hr. course for each phase (CR, BTW) |
| CT | 311 | 0 | X | X | DMV | H.S. diploma or equiv. plus 3-hr. course. Advanced 3-hr. course after 3 yrs. |
| DE | FAILED TO REPORT | | | | | |
| DC | NA | NA | NA | NA | NA | NA |
| FL | 245 | NA | X | X | DHS | BTW and classroom instruction |
| GA | 98 | NA | X | X | DPS | Written exam |
| HI | FAILED TO REPORT | | | | | |
| ID | 10 | 0 | X | X | DOE | Same as H.S. instructors |
| IL | NA | 0 | X | X | DOE | College minor, traffic safety |
| IN | NA | NA | X | X | DMV & DOE | H.S. diploma |
| IA | 0 | NA | X | X | DOE | Same as H.S. instructors |
| KS | 14 | 0 | X | X | DOE | 6-hr. course in Dr. Ed., 3-hr. general safety |
| KY | 47 | NA | NA | NA | SP | H.S. diploma or GED |
| LA | FAILED TO REPORT | | | | | |
| ME | 119 | 0 | X | X | DOS | Same as H.S. instructors |
| MD | 268 | NA | X | X | DMV | CR - College degree plus 6-hr. safety ed.; BTW-H.S. diploma plus 40-hour course |
| MA | 1,200 | 0 | X | X | DMV | Commercial school instructor course |
| MI | 4,080 | 0 | X | X | DOE (teens) DOS | 8-hr. course in Dr. Ed. |
| MN | FAILED TO REPORT | | | | | |
| MS | FAILED TO REPORT | | | | | |
| MO | 0 | 0 | NA | NA | NA | NA |
| MT | 0 | 0 | NA | NA | NA | NA |
| NB | 14 | 0 | X | X | DMV | None |
| NV | FAILED TO REPORT | | | | | |
| NH | 250 | 0 | X | X | DOE | Same as H.S. instructors |
| NJ | 879 | 0 | X | X | DMV | None |
| NM | 51 | 0 | X | X | DOE | Same as H.S. instructors |
| NY | 2,921 | 0 | NA | X | DMV | 30-hr. pre-service instruction |
| NC | 108 | 0 | X | X | DMV | 2-hr. teacher ed. course |
| ND | 6 | 0 | X | X | SP | Yes, unspecified |
| OH | 1,500 | NA | X | X | DHS | 40-hr courses |
| OK | FAILED TO REPORT | | | | | |
| OR | 23 | NA | X | X | DMV | H.S. diploma |
| PA | 416 | 0 | X | X | DOE | CR - 12-hr. Dr. Ed. |
| RI | NA | NA | NA | X | LB | 3-hr. Dr. Ed. plus 250 hr. experience (for owners only) |
| SC | FAILED TO REPORT | | | | | |
| SD | NA | NA | NA | NA | NA | NA |
| TN | FAILED TO REPORT | | | | | |
| TX | 349 | 0 | X | X | DPS | Teacher's certificate plus Dr. Ed. specialization |
| UT | 15 | 0 | X | X | DPS | 18-hr. course or equiv. experience |
| VT | 13 | 0 | X | X | DMV | A basic and an advanced Dr. Ed. course |
| VA | FAILED TO REPORT | | | | | |
| WA | 104 | NA | X | X | LB | Commercial license |
| WV | 0 | NA | X | X | DOE | Same as H.S. instructors |
| WI | FAILED TO REPORT | | | | | |
| WY | FAILED TO REPORT | | | | | |
| TOTAL | 12,893 | 3 | 29 | 31 | | |

KEY: DOE - Dept. of Education/Dept. of Public Instruction
DPS - Dept. of Public Safety
DMV - Dept. of Motor Vehicles
DHS - Dept. of Highway Safety
SP - State Police
DOS - Dept. of State
LB - License Board

**TABLE 1—Annual Incidence of Cancer, Coronary Heart Disease, Motor Vehicle Injuries, and Stroke by Age and Sex, United States, 1975**

| | U.S. General Population, 1975 | Cancer | Coronary Heart Disease | Motor Vehicle Injuries | Stroke* |
|---|---|---|---|---|---|
| Males | | | | | |
| 0-14 years | 27,365,000 | 3,585 | 119 | 275,520 | 354 |
| 15-24 | 20,375,000 | 4,661 | 500 | 997,434 | 502 |
| 25-34 | 15,355,000 | 6,150 | 5,939 | 492,651 | 962 |
| 35-44 | 11,153,000 | 11,210 | 34,730 | 229,600 | 2,322 |
| 45-54 | 11,491,000 | 37,954 | 81,184 | 185,693 | 9,512 |
| 55-64 | 9,345,000 | 80,555 | 150,464 | 127,720 | 26,086 |
| 65-74 | 6,027,000 | 104,340 | 90,043 | 73,346 | 43,191 |
| ≥75 | 3,145,000 | 83,366 | 47,269 | 34,188 | 47,589 |
| Total Males | 104,238,000 | 331,821 | 410,248 | 2,416,152 | 130,518 |
| Females | | | | | |
| 0-14 years | 26,284,000 | 2,944 | 23 | 227,905 | 206 |
| 15-24 | 19,913,000 | 4,502 | 99 | 657,827 | 274 |
| 25-34 | 15,580,000 | 10,876 | 1,218 | 342,609 | 564 |
| 35-44 | 11,671,000 | 22,888 | 7,345 | 196,149 | 1,353 |
| 45-54 | 12,280,000 | 54,891 | 28,514 | 179,422 | 3,805 |
| 55-64 | 10,435,000 | 73,974 | 82,082 | 131,884 | 22,837 |
| 65-74 | 7,847,000 | 80,312 | 77,261 | 76,430 | 33,348 |
| ≥75 | 5,382,000 | 78,472 | 53,136 | 42,017 | 59,961 |
| Total Females | 109,392,000 | 328,859 | 249,678 | 1,854,243 | 122,348 |
| Total Population | 213,630,000 | 660,680 | 659,926 | 4,270,395 | 252,866 |

*Stroke incidence figures do not include Transient Ischemic Attacks.

males for those under 25 and over 55. For the other three impairments, incidence among males exceeds that among females at younger ages and trails at older ages (although in each case the rate of incidence—incident events per 1,000 population—remains higher for males).

Disaggregation of the four impairments by subcategories, as shown in Table 2, sheds further light on patterns of incidence: mean age at incidence is younger—by three decades—for motor vehicle injuries than for the three diseases; males tend to have cancer at a somewhat older age than they first show coronary heart disease, while the reverse is true for females; for both sexes, the mean age at first stroke is, at close to 70 years, greater than that for the other conditions.

The final column of Table 2 indicates the breakdown between male and female incidence. Women tend to have vastly more cancers of the reproductive system due largely to the inclusion of breast cancer in this category; they also have slightly more cancers of other sites and cases of APU. Male predominance is most marked among cancers of the respiratory system, buccal cavity, and urinary tract, among all coronary heart disease but APU, and mong motor vehicle fatalities and severely injured non-fatalities.

### Mortality

Mortality effects are displayed in Table 3. The average life expectancies of persons with various impairments are compared with those of age- and sex-matched persons of the general population. The differences are given in the third set of columns as the average number of life years lost per patient. This shows that all groups of cancers and all forms of coronary heart disease but APU are to be taken seriously—with an average loss of 10.5 years for all cancers and 9.1 years for coronary heart disease. In contrast, initial events of stroke and MVI are associated with expected losses of 6.6 and 0.5 life years, the last being low because of the relatively low case fatality rate for MVIs.

Multiplying the incidence by the expected loss of years per impaired person gives the total life years lost associated with incident events in 1975, as shown in Table 3. Among the four impairments, the total life years lost by affected individuals are greatest for cancer (6.94 million), second greatest for CHD (3.43 million), third greatest for MVI (2.01 million), and least for stroke (1.68 million). Comparing these totals by sex, we see that there was a greater loss in life years among women than men with cancer and stroke, while males with heart disease and motor vehicle injuries lost more than twice as many life years as did females.

### Indirect Costs

The economic significance of lost life years depends on their productive potential: very young and very old life years have less economic significance, although their noneconomic aspects are important. Productive years lost well in the future are—due to discounting—less valuable than those lost soon. In this perspective, lost life years due to stroke are relatively less valuable than years lost due to heart disease; for motor vehicle injuries, conflicting effects are at work: the life years lost are among the most productive, yet many are lost so far in the future that they have small present value due to the discounting effect.

These conditions are brought together in calculating the present value of expected future earnings, PV(EFE), for individuals with each of the four impairments (Table 4). There we see, for instance, in the first line, that a boy under 15 years of age who gets cancer has PV(EFE) of only $40,542: if

**TABLE 2—Estimated Incidence of Diseases and Injuries, Average Age at Incidence, and Proportion of Incidence That Is Male by Impairment Subcategories, United States, 1975**

| Disease/Injury | Incidence | Average Age at Incidence | | | Proportion of Incidence That Is Male |
|---|---|---|---|---|---|
| | | Male | Female | Both Sexes | |
| Cancer | | | | | |
| Digestive System | 168,411 | 66.8 | 68.6 | 67.7 | .522 |
| Respiratory System | 99,889 | 64.0 | 63.2 | 63.8 | .796 |
| Buccal Cavity | 23,562 | 61.9 | 61.7 | 61.8 | .710 |
| Reproductive System | 214,758 | 69.9 | 59.8 | 62.7 | .283 |
| Urinary System | 43,577 | 65.7 | 66.3 | 65.9 | .698 |
| Nervous System | 10,570 | 48.5 | 48.0 | 48.3 | .548 |
| Leukemias | 21,293 | 58.4 | 60.6 | 59.3 | .568 |
| Lymphomas | 29,338 | 56.4 | 60.5 | 58.3 | .542 |
| Other Sites | 49,282 | 58.3 | 57.7 | 58.0 | .460 |
| All Cancers | 660,680 | 64.7 | 62.2 | 63.5 | .502 |
| Coronary Heart Disease | | | | | |
| Sudden Death | 68,967 | 59.1 | 68.4 | 62.2 | .671 |
| MI | 231,842 | 61.3 | 66.1 | 62.4 | .777 |
| CI | 75,151 | 56.9 | 64.0 | 59.7 | .610 |
| APU | 283,966 | 60.6 | 65.0 | 62.9 | .486 |
| All CHD | 659,926 | 60.3 | 65.5 | 62.3 | .622 |
| Motor Vehicle Injuries | | | | | |
| Fatalities | 44,995 | 33.8 | 37.0 | 34.7 | .734 |
| *MAIS 1 | 3,053,035 | 28.7 | 30.4 | 29.5 | .555 |
| *MAIS 2 | 702,923 | 30.4 | 33.0 | 31.5 | .565 |
| *MAIS 3 | 353,569 | 31.4 | 39.7 | 34.7 | .602 |
| *MAIS 4 | 87,262 | 30.4 | 34.6 | 31.8 | .678 |
| *MAIS 5 | 28,611 | 28.8 | 29.7 | 29.0 | .739 |
| All MVI | 4,270,395 | 29.3 | 31.6 | 30.3 | .566 |
| Stroke | | | | | |
| Hemorrhage | 35,485 | 61.3 | 63.7 | 62.5 | .518 |
| Infarction | 217,381 | 71.3 | 74.7 | 72.9 | .516 |
| All Stroke** | 252,866 | 69.9 | 73.1 | 71.5 | .516 |

*MAIS 1 through MAIS 5 injuries that are non-fatalities.
**Stroke incidence figures do not include Transient Ischemic Attacks.

he gets heart disease, this value is $71,199; if a motor vehicle injury, $129,152; if a stroke, $48,660. Subtracting the PV(EFE)s of patients from those of the general population yields forgone earnings, presented in Table 5—the expected future productivity lost when a person sustains a motor vehicle injury or acquires one of the three diseases.

Table 5 combines subcategories of the four impairments. Because non-serious motor vehicle injuries are vastly more numerous than more serious ones, the average forgone earnings of MVIs are a relatively low $2,263 per injured person. Average earnings forgone per person amounted to $25,334 for cancer, $17,010 for heart disease, and $16,102 for stroke.

### Direct and Total Costs

Direct costs, defined as expenditures for goods and services necessitated by each of the four impairments, are shown in Table 6 along with the total of direct and indirect costs. The first column shows the costs of treatment in the first year—primarily the costs of treating the initial episode of that condition. Costs of subsequent treatment, present-valued at a discount rate of 6 per cent, are given in the second column. Other costs—primarily insurance administration, but also, for motor vehicle injuries, legal and court costs—appear in the third column. The fourth column contains the sums of the three components of direct costs, while the fifth presents forgone earnings, seen in Table 5 on a per person basis, but here broken down by totals per subcategory of a condition. The sum of all direct and indirect costs is given in the final column of Table 6 and is also presented graphically in Figure 1.

Among cancers, the types leading to both greatest direct and indirect costs are those of the digestive, respiratory, and reproductive systems—primarily due to their greater incidence. Sudden death in coronary heart disease causes little direct cost but large forgone earnings. Since both APU and TIA are considered of themselves non-life-threatening, their indirect costs are incurred solely in earnings lost while seeking treatment or in recuperation. These are, accordingly, small. Among motor vehicle injuries, the four least severe categories (MAIS 1 to MAIS 4) account for 64 per cent of all MVI direct costs but for only 8 per cent of the indirect costs, indicating their responsibility for extensive short-term medical expenses, but their limited impact on long-term productivity. Critical but not immediately fatal injuries (MAIS 5) have greater direct costs than any other subcategory of MVI.

**TABLE 6—Estimated Direct and Indirect Costs Associated with the Incidence of Cancer, Coronary Heart Disease, Motor Vehicle Injuries, and Stroke, United States, 1975 (Discounted at 6 Per Cent)**

| Disease, Injury | Direct Costs (millions $) | | | | Indirect Costs (millions $) | Total Costs (millions $) |
|---|---|---|---|---|---|---|
| | Treatment during First Year | Future Treatment | Other* | Total Direct | Forgone Earnings | |
| Cancer | | | | | | |
| Digestive System | $1,172 | $ 207 | $ 62 | $ 1,441 | $ 3,569 | $ 5,010 |
| Respiratory System | 690 | 102 | 36 | 828 | 3,760 | 4,588 |
| Buccal Cavity | 182 | 93 | 12 | 287 | 593 | 880 |
| Reproductive System | 1,111 | 1,030 | 96 | 2,237 | 3,711 | 5,948 |
| Urinary System | 267 | 137 | 18 | 422 | 781 | 1,203 |
| Nervous System | 87 | 49 | 6 | 142 | 917 | 1,059 |
| Leukemias | 157 | 50 | 9 | 216 | 944 | 1,160 |
| Lymphomas | 198 | 133 | 15 | 346 | 1,383 | 1,729 |
| Other Sites | 266 | 205 | 21 | 492 | 1,079 | 1,571 |
| All Cancers | 4,130 | 2,005 | 276 | 6,411 | 16,737 | 23,148 |
| Coronary Heart Disease | | | | | | |
| Sudden Death | 7 | 0 | 0 | 7 | 3,891 | 3,898 |
| MI | 974 | 459 | 64 | 1,497 | 5,369 | 6,866 |
| CI | 329 | 248 | 26 | 603 | 1,958 | 2,561 |
| APU | 77 | 290 | 17 | 384 | 7 | 391 |
| All CHD | 1,387 | 997 | 107 | 2,491 | 11,225 | 13,716 |
| Motor Vehicle Injuries | | | | | | |
| Fatalities | 50 | 0 | 126 | 176 | 7,052 | 7,228 |
| MAIS 1 | 561 | 0 | 71 | 632 | 111 | 743 |
| MAIS 2 | 674 | 0 | 123 | 797 | 180 | 977 |
| MAIS 3 | 727 | 15 | 228 | 970 | 314 | 1,284 |
| MAIS 4 | 434 | 122 | 109 | 665 | 206 | 871 |
| MAIS 5 | 412 | 733 | 388 | 1,533 | 1,798 | 3,331 |
| All MVI | 2,858 | 870 | 1,045 | 4,773 | 9,662 | 14,435 |
| Stroke | | | | | | |
| Hemorrhage | 165 | 64 | 10 | 239 | 1,470 | 1,709 |
| Infarction | 1,345 | 583 | 87 | 2,015 | 2,602 | 4,617 |
| TIA | 16 | 93 | 5 | 114 | 16 | 130 |
| All STrokes | 1,526 | 740 | 102 | 2,368 | 4,088 | 6,456 |
| All Conditions | 9,901 | 4,612 | 1,530 | 16,043 | 41,712 | 57,755 |

*"Other" costs include insurance administration costs and, in the case of motor vehicle injuries, legal and court costs as well. For motor vehicle injuries, legal and court costs constitute $878 million of the $1,045 million in "other" costs.

proach rather than the prevalence approach, we compared our results with those calculated by Berk[xv] following the prevalence approach. Berk estimated the annual cost of stroke to be $6.84 billion—in contrast with our incidence-based estimate of $6.46 billion. For cancer, Berk calculated $22.36 billion in annual costs vs our figure of $23.15 billion.

The most significant discontinuity in impairment costs as a function of age at incidence occurs for males at retirement. We accordingly examined the effects of having assumed 70-year-old males to be representative of all males between 65 and 74. Using year-by-year interpolations, we found, for instance, that among those with stroke, this analytic assumption led to a 4.7 per cent underestimation of forgone earnings for this group—an error of roughly $7 million. For other groups and for direct costs, the errors introduced by assuming the representativeness of persons of midpoint ages are considerably smaller.

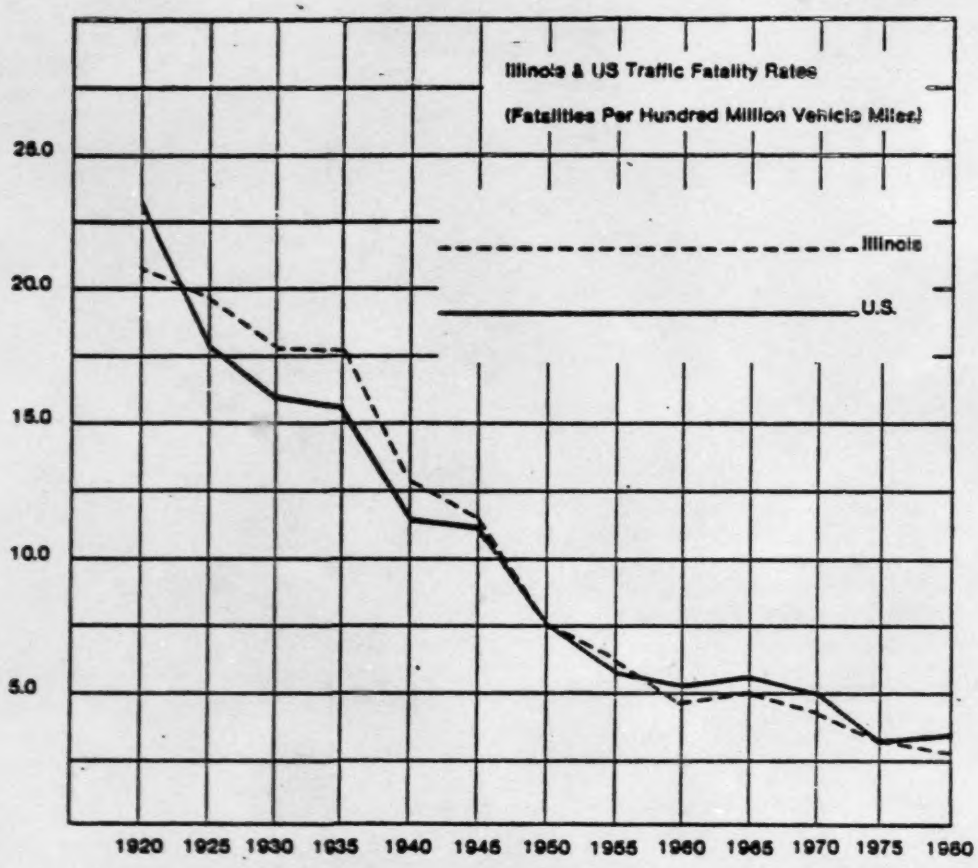
Our sensitivity analyses indicate that the current state of the art in estimating the economic costs of illness has limited numerical precision. For many decisions involving comparisons across health conditions, the numerical accuracy can be kept within acceptable bounds, provided that care is taken to maintain methodological consistency. For other decisions, useful guidance on the size of likely errors may be derived from sensitivity analyses. In this way, applications of economic cost estimates can be restricted to those for which their precision is adequate.

## *Discussion*

As with many forms of analysis, the potential for misunderstanding and abusing the economic costs of diseases and injuries is great. Economic costs, as has been often noted, do not capture pain and suffering, grief, the value of leisure time, or the symbolic aspects of illness. Economic values of specific persons moreover misstate true societal valuations: our society does not value men relative to women, or the rich relative to the poor, or different ethnic groups, or the retired relative to the employed in the ratios of their wages. These shortcomings to economic valuations should be kept in mind.

II. Selected Illinois Data (23)

# HISTORICAL TRENDS




# ILLINOIS FATALITIES

# 10 YEAR TRENDS IN ILLINOIS TRAFFIC*

MOTOR VEHICLES REGISTERED**
(MILLIONS)-UP 29.1%

| 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|---|---|---|
| 5.53 | 5.78 | 6.16 | 6.34 | 6.49 | 6.71 | 7.22 | 7.60 | 8.34 | 7.14 |

LICENSED DRIVERS (MILLIONS) - UP 16.9%

| 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|---|---|---|
| 5.99 | 6.15 | 6.30 | 6.53 | 6.39 | 6.55 | 6.74 | 6.85 | 6.93 | 7.00 |

VEHICLE MILES TRAVELED (BILLIONS)***

| 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|---|---|---|
| 57.39 | 59.38 | 60.77 | 59.21 | 60.94 | 64.41 | 66.95 | 65.83 | 64.93 | 64.76+ |

DEATHS (HUNDREDS) - DOWN 16.9%

| 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|---|---|---|
| 24.00 | 22.54 | 23.69 | 20.07 | 20.84 | 20.73 | 21.70 | 21.66 | 20.48 | 19.94 |

INJURIES (THOUSANDS) - UP 11.9%

| 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|---|---|---|
| 148.83 | 154.06 | 168.46 | 160.55 | 172.44 | 181.93 | 197.47 | 198.29 | 187.74 | 166.59 |

ACCIDENTS (THOUSANDS) - UP 16.8%

| 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|---|---|---|
| 393.57 | 449.89 | 500.60 | 486.61 | 511.89 | 525.47 | 573.06 | 587.08 | 568.71 | 459.69 |

MILEAGE DEATH RATE
(PER HUNDRED MILLION VEHICLE MILES)***

| 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|---|---|---|
| 4.2 | 3.8 | 3.9 | 3.4 | 3.4 | 3.2 | 3.2 | 3.3 | 3.2 | 3.1 |

*1980 compared with 1971.
**Does not include trailers and semi-trailers or dealer and in-transit vehicles.
***Method of obtaining vehicle miles traveled was revised in 1978, so direct comparisons to previous years can not be made.
+Preliminary estimate (subject to revision).

# CAPSULE OF 1980 TRAFFIC ACCIDENT STATISTICS

| The 1980 Toll | |
|---|---|
| Persons Killed | 1,994 |
| Persons Injured | 166,590 |
| Economic Cost | 1,790,000,000 |

| 1980 Versus 1979 | |
|---|---|
| Travel | Decrease 0.3% |
| Reported Accidents | Decrease 19.2% |
| Fatalities | Decrease 2.6% |
| Travel-Death Rate | Decrease 3.1% |

## Estimated Cost of All Reported Traffic Accidents

There were 459,692 reported accidents of which 111,878 were personal injury and 346,023 were property damage accidents.

1,994 persons were killed in 1,791 fatal accidents for an average of 1.11 deaths per fatal accident.

Traffic deaths fell below 2000 for the first time since 1962.

Of all drivers involved in fatal accidents, 15.0 percent were under 20 years of age, and 35.8 percent were under 25 years of age.

For each person killed, there were 84 persons injured.

Of all fatal accidents, 28.6 percent occurred at intersections.

43.0 percent of all fatal accidents occurred on rural roads, but only 11.7 percent of all accidents occurred on rural roads.

One traffic accident was reported every 69 seconds.

One person was killed every 4 hours and 24 minutes as a result of a traffic accident.

One person was injured every 3 minutes and 10 seconds in a traffic accident.

The 1980 pedestrian death toll was 367 persons. This is an increase of 42 deaths from the 1979 total.

For each pedestrian killed, there were 29.4 injured.

Of all pedestrians killed, only 22.6 percent were killed crossing at intersections.

29.2 percent of all pedestrians killed were under 20 years, and 26.2 percent were 65 years of age or older.

Children under the age of 15 accounted for 53.7 percent of the pedalcyclist deaths.

## NET NUMBERS OF LICENSED DRIVERS IN STATE

| AGE GROUPS | TOTAL—ALL CLASSES | | |
|---|---|---|---|
| | MALE (1) | FEMALE (2) | TOTAL (3) |
| 1. 16 years | 50,125 | 43,913 | 94,038 |
| 2. 17 years | 78,937 | 68,962 | 147,899 |
| 3. 18 years | 90,879 | 79,294 | 170,173 |
| 4. 19 years | 98,743 | 87,515 | 186,258 |
| 5. 20 years | 97,175 | 86,439 | 183,614 |
| 6. 21 years | 102,298 | 91,912 | 194,210 |
| 7. 22 years | 103,152 | 92,816 | 195,968 |
| 8. 23 years | 99,108 | 89,049 | 188,157 |
| 9. 24 years | 100,864 | 90,976 | 191,840 |
| 10. 25-29 years | 471,894 | 432,183 | 904,077 |
| 11. 30-34 years | 426,701 | 399,534 | 826,235 |
| 12. 35-39 years | 332,645 | 313,257 | 645,902 |
| 13. 40-44 years | 275,969 | 255,013 | 530,982 |
| 14. 45-49 years | 252,673 | 226,686 | 479,359 |
| 15. 50-54 years | 266,460 | 232,055 | 498,515 |
| 16. 55-59 years | 260,200 | 220,806 | 481,006 |
| 17. 60-64 years | 218,192 | 180,866 | 399,058 |
| 18. 65-69 years | 171,240 | 135,715 | 306,955 |
| 19. 70 and over | 226,407 | 152,563 | 378,970 |
| TOTAL | 3,723,662 | 3,279,554 | 7,003,216 |

Courtesy of Illinois Department of Transportation, 1980.